Amendments to the Specification

Please substitute the paragraph beginning at page 1, line 5, with the following:

-- This invention relates to a positioning system suitably usable in high precision processing such as semiconductor lithography, for example, and an exposure apparatus having such a positioning system. In another aspect, the invention concerns a device manufacturing method using such an exposure apparatus. --

Please substitute the paragraph beginning at page 1, line 12, with the following:

-- Typical exposure apparatuses for the manufacture of semiconductor devices include a step-and-repeat type exposure apparatus (called a "stepper") in which a pattern of an original (e.g., a reticle or a mask) is sequentially transferred to plural exposure regions on a substrate (e.g., a wafer or a glass substrate) through a projection optical system while the substrate is moved stepwise, and a step-and-scan type exposure apparatus (called a "scanner") in which, by repeating stepwise motion and scan exposure, exposure and transfer are carried out repeatedly to plural regions on a substrate. --

Please substitute the paragraph beginning at page 1, line 25, and ending at page 2, line 9, with the following:

-- Particularly, the step-and-scan type apparatuses use only a portion relatively close to the optical axis of a projection optical system with the restriction by a slit, and therefore it enables higher precision and wider picture angle exposure of a fine pattern. Such exposure

apparatuses generally comprise a positioning stage system (e.g., a wafer stage or a reticle stage) for moving a wafer or reticle at a high speed and then positioning the same, as disclosed in Japanese Laid-Open Patent Application No. 62-88526, for example. --

Please substitute the paragraph beginning at page 2, line 12, and ending on page 3, line 3, with the following:

-- Japanese Laid-Open Patent Application No. 62-88526 discloses a structure in which ~~that~~ the driving position of an X-Y movable guide and the gravity center position of a stage are at the same level, thereby preventing ~~to prevent~~ yawing and pitching of the stage. However, in such a stage system, there is no reaction force absorbing mechanism for absorbing a propulsion reaction force to be produced by motion of a movable portion. Therefore, when the stage is driven, a reaction force of inertia is produced as a result of acceleration or deceleration. If it is transmitted to a base table, it causes swinging motion or vibration of the base table. Hence, the natural vibration of the mechanism system of the exposure apparatus may be ~~exited~~ excited by swinging motion or vibration of the base table to generate high frequency vibration. This is a factor that obstructs high-speed motion and high-precision positioning. --

Please substitute the paragraph beginning at page 4, line 15, and ending at page 5, line 14, with the following:

-- In accordance with another aspect of the present invention, there is provided a positioning system, comprising: a movable portion supported for movement in two axial

directions being substantially orthogonal to each other along a reference plane; an X movable member including said movable portion; a Y movable member including said moveable portion; a first reaction force absorbing mechanism for absorbing a propulsion reaction force to be produced by motion of said X movable member in a first movement direction; and a second reaction force absorbing mechanism for absorbing a propulsion reaction force to be produced by motion of said Y movable member in a second movement direction, wherein a <u>first</u> ~~fourth~~ distance between the reference plane and a gravity center position of said X movable member and a <u>second</u> ~~fifth~~ distance between the reference plane and a gravity center position of said first reaction force absorbing mechanism are made substantially equal to each other, and a <u>third</u> ~~sixth~~ distance between the reference plane and a gravity center position of said Y movable member and a <u>fourth</u> ~~seventh~~ distance between the reference plane and a gravity center position of said second reaction force absorbing mechanism are made substantially equal to each other. --

Please substitute the paragraph beginning at page 6, line 21, and ending at page 7, line 21, with the following:

-- In accordance with a further aspect of the present invention, there is provided a positioning system, comprising: a movable portion supported for movement in two axial directions being substantially orthogonal to each other along a reference plane; a first guide member for guiding said movable portion in a first direction; a second guide member for guiding said movable portion in a second direction; a first reaction force absorbing mechanism for absorbing a propulsion reaction force to be produced by motion of said movable portion in a first

direction; and a second reaction force absorbing mechanism for absorbing a propulsion reaction force to be produced by motion of said movable portion in a second direction, wherein a first ~~an eighth~~ distance between the reference plane and a gravity center position of said first guide member and a second ~~ninth~~ distance between the reference plane and a gravity center position of said first reaction force absorbing mechanism are made substantially equal to each other, and a third ~~tenth~~ distance between the reference plane and a gravity center position of said second guide member and a fourth ~~an eleventh~~ distance between the reference plane and a gravity center position of said second reaction force absorbing mechanism are made substantially equal to each other. --

Please substitute the paragraph beginning at page 7, line 22, and ending at page 8, line 23, with the following:

-- In accordance with a yet further aspect of the present invention, there is provided a positioning system, comprising: a movable portion supported for movement in two axial directions being substantially orthogonal to each other along a reference plane; a first motor movable element for propelling said movable portion in a first direction along the reference plane; a second motor movable element for propelling said movable portion in a second direction along the reference plane; an first reaction force absorbing mechanism for absorbing a propulsion reaction force to be produced by motion of said movable portion in the first direction; and a second reaction force absorbing mechanism for absorbing a propulsion reaction force to be produced by motion of said movable portion in the second direction, wherein a first ~~twelfth~~

distance between the reference plane and a gravity center position of said first motor movable element and a second ~~thirteenth~~ distance between the reference plane and a gravity center position of said first reaction force absorbing mechanism are made substantially equal to each other, and a third ~~fourteenth~~ distance between the reference plane and a gravity center position of said second motor movable element and a fourth ~~fifteenth~~ distance between the reference place and a gravity center position of said second reaction force absorbing mechanism are made substantially equal to each other. --

Please substitute the paragraph beginning at page 8, line 24, and ending at page 9, line 11, with the following:

-- In accordance with a still further aspect of the present invention, there is provided a positioning system, comprising: a movable portion supported for movement in two axial directions being substantially orthogonal to each other along a reference plane; a first guide member for guiding said movable portion in a first direction; and a first motor movable element for propelling said movable portion in a first direction along the reference plane, wherein a first ~~an eighth~~ distance between the reference plane and a gravity center position of said first guide member and a second ~~twelfth~~ distance between the reference plane and said first motor movable element are made substantially equal to each other. --

Please substitute the paragraph beginning at page 9, line 12, with the following:

-- In accordance with a still further aspect of the present invention, there is provided a positioning system, comprising: a movable portion supported for movement in two axial directions being substantially orthogonal to each other along a reference plane; a second guide member for guiding said movable portion in a second direction; and a second motor movable element for propelling said movable portion in a second direction along the reference plane, wherein a first ~~tenth~~ distance between the reference place and a gravity center position of said second guide member and a second ~~fourteenth~~ distance between the reference plane and said second motor movable element are made substantially equal to each other. --

Please substitute the paragraph beginning at page 12, line 4, with the following:

-- Figure 6 is a flow chart for explaining a general procedure for the manufacture of semiconductor devices. --

Please substitute the paragraph beginning at page 13, line 11, with the following:

-- The movable table 1 is supported by a ~~the~~ static bearing 8 with respect to the stage base 4 without contact thereto as seen in Figure 1B, and it is movable in the Y direction. Fixedly mounted at the opposite sides of the movable table 1 are the Y linear motor stators 2 and 2′ for driving the moving table 1 in the Y direction. As shown in Figure 1B, each of the Y linear motor stators 2 and 2′ is moveably accommodated inside a recessed portion of the Y linear motor stator 3 or 3′, with a predetermined clearance maintained therebetween. --

Please substitute the paragraph beginning at page 13, line 22, and ending on page 14, line 5, with the following:

-- More specifically, the Y linear motor stators 3 and 3′ are supported by the static bearings 7 and 7′ with respect to the stage base 4, without contact thereto, and simultaneously, it is supported by the static bearings 6 and 6′ with respect to the Y yawing guides 5 and 5′ without contact thereto, while the stators 3 and 3′ are movable along the Y direction. Further, these Y linear motor stators 3 and 3′ have a predetermined mass so that they can function as a reaction force counter, to be described later. --

Please substitute the paragraph beginning at page 14, line 6, with the following:

-- The Y linear motor movable element 2 and 2′ are connected to the movable table 1, such that, with the motion of the movable elements, the movable table 1 moves in <u>the</u> Y direction. At this time, a reaction force of <u>a</u> driving force (drive reaction force) is produced by the motion of the movable table 1, and it is applied to the Y linear motor stators 3 and 3′. Since the Y linear motor stators 3 are supported for movement upon the stage base 4, with the driving reaction force, the Y linear motor stators move along the stage base 4 in a direction opposite to the movement direction of the movable table 1. --

Please substitute the paragraph beginning at page 17, line 4, with the following:

-- Furthermore, in accordance with the present embodiment, the linear motor stators 3 and 3′ are provided independently of each other. As a result, even if the forces applied

to the Y linear motor movable element 2 and 2′are different, the reaction force can be cancelled through separate movements of the Y linear motor stators 3 and 3′. For example, if the movable table 1 is moved rotationally in the θ direction or where a certain object placed on the movable table 1 has an offset load with respect to the X direction, outputs of the Y linear motor movable elements 2 and 2′ may be different. Even in such a case, however, since the Y linear motor stators 3 and 3′ can be moved separately, effective cancellation of the drive reaction force is accomplished. --

Please substitute the paragraph beginning at page 18, line 5, with the following:

-- If, however, there is misregistration between the gravity center level (height) ~~and~~ of the movable table 1 and the gravity center level of the stator Y linear motor, it is necessary to take into account the moment about the gravity center of the structure, including the stage base. More specifically, the moment about the X-axis to be applied to the apparatus as a whole due to the motion of the movable table 1 and the moment about the X-axis to be applied to the apparatus as a whole due to the movement of the Y linear motor stators 2 and 2′ do not balance with each other, such that a moment corresponding to the difference therebetween is applied to the stage base consequently. --

Please substitute the paragraph beginning at page 18, line 20, and ending on page 19, line 2, with the following:

-- For example, as shown in Figure 4, ~~where~~ when the gravity center position G1 of the movable table 1 (the height in the Z direction, taking the top face of the stage base 4 as a reference) is higher than the gravity center position G2 of the Y linear motor stators 3 and 3′, if the movable table 1 is moved in the positive Y direction (leftward in Figure 4), a clockwise moment in the negative ωx direction (moment reaction force) is applied to the stage base as a result of it. --

Please substitute the paragraph beginning at page 19, line 3, with the following:

-- On the other hand, since the Y linear motor stators 3 and 3′ move in the negative Y direction in response to the application of a drive reaction force in the negative Y direction thereto, as a result, a counterclockwise moment in the positive ωx direction (moment reaction force) is applied to the stage base 4. --

Please substitute the paragraph beginning at page 19, line 10, with the following:

-- Obviously, if the applied forces are equal to each other, the former moment having a higher gravity center is larger. As a consequence, therefore, the moment in the negative ωx direction is dominantly applied to the stage base. ~~Where~~ When the gravity center positions are different, as described above, the moment reaction force could not be cancelled with the structure of the Y linear motor stators 3 and 3′. As a result, the vibration of the stage base 4 is

accelerated by the moment reaction force, while vibration of the floor where the apparatus is mounted is excited. Hence, vibration of the machine itself as well as vibration of another machine may be excited. --

Please substitute the paragraph beginning at page 20, line 14, and ending on page 21, line 13, with the following:

-- In the present embodiment, as shown in Figure 1B, preferably, the height (G3) of the line action of the force to be applied to the Y linear motor movable elements is set at the same level as the height (G2) of the gravity center position of the Y linear motor stators 3 and 3′. With this arrangement, the Y linear motor propulsion force can be applied to the gravity center height of the Y linear motor stators 3 and 3′. Thus, regarding the operation of the Y linear motor stators 3 and 3′ as a single unit, it does not produce a moment about the gravity center thereof. Hence, there is an advantage that excitation of vibration to the stage base 4 can be avoided. Simultaneously, the Y linear motor propulsion force acts on the gravity center height (G1) of the movable table 1 or on the gravity center height of the whole movement structure, including the movable table 1 and the Y linear motor movable elements 2 and 2′. Therefore, regarding the operation of the movable table 1 or the operation of only the whole movement structure including the movable table 1 and the Y linear motor movable elements 2 and 2′, it does not produce a moment about the gravity center thereof. Hence, excitation of vibration to the stage base can be prevented effectively. --

Please substitute the paragraph beginning at page 21, line 14, with the following:

-- With the structure described above, the drive reaction force in the Y-axis direction, which is the movement direction of the movable table 1, is absorbed by the motion of the stators. Further, the gravity center height (G1) of the movable table 1, the gravity center height (G2) of the linear motor stators 3 and 3′, and the height (G3) of the line of action of the linear motors are registered with each other, by which production of a moment reaction force about the Z axis can be prevented. As a result, a high-speed and high-precision positioning system in which excitation of vibration or swinging motion of the stage base is prevented, is accomplished. --

Please substitute the paragraph beginning at page 22, line 1, with the following:

-- While the present invention has been described with reference to an example wherein the guide surface of the movable table 1 and the guide surface of the Y linear motor stators 3 and 3′ are coplanar (i.e., stage base 4), they may be defined upon different parallel planes, and substantially the same advantageous effects are attainable ~~in~~ on that occasion. --

Please substitute the paragraph beginning at page 23, line 1, with the following:

-- Denoted at 12 is an X beam (beam member) for moving the moving table 1 in the X-axis direction. Denoted at 13 is a Y beam for moving the movable table 1 in the Y direction. Formed on the opposite side faces 12a and 12b of the X beam 12 are Y guide surfaces for guiding the motion of the movable table 1 in the Y direction. Also, formed on the opposite

side faces 13a and 13b of the Y beam 13 are X guide surfaces for guiding the motion of the movable table 1 in the X direction. There are a plurality of static bearings (not shown), which are provided between the movable table 1 and the Y guide surfaces, formed on the X beam 12, and the X guide surfaces, formed on the Y beam 13. Hence, non-contact force transmission and straight guiding operation are carried out thereby. --

Please substitute the paragraph beginning at page 23, line 26, and ending on page 24, line 9, with the following:

-- Denoted at 17 and 17′ are X linear motor movable elements for moving the X beam 12 in the X direction. Denoted at 18 and 18′ are X linear motor stators. Denoted at 20 and 20′ are X yaw guides for restricting yawing motion of the X linear motor stators 18 and 18′. Also, denoted at 19 and 19′ are static bearings for floating the side faces of the X linear motor stators 18 and 18′ through static pneumatic pressure. Similar static bearings are provided at the bottom faces, while not shown in the drawing. --

Please substitute the paragraph beginning at page 24, line 10, with the following:

-- The movable table 1 is supported by the static bearings 8 with respect to the stage base 4 without contact thereto, as shown in Figure 2B, and it can be moved in the X and Y directions. The movable table 1 has the X beam 12 and Y beam 13 extending therethrough, substantially orthogonally to each other. There are static bearings (not shown) at the opposed faces of the Y guide surfaces of the X beam 12 and the X guide surface of the Y beam 13, of the

movable table 12, which bearings function to perform transmission of forces and various drive-guiding operations. As a result, the movable table 1 can always be positioned at the point of intersection between the X and Y beams. --

Please substitute the paragraph beginning at page 24, line 25, and ending on page 25, line 7, with the following:

-- The X sliders 16 and 16′ and the Y sliders 14 and 14′ are coupled to the opposite ends of the X beam 12 and the Y beam 13, respectively. Also, there are static bearings mounted at the bottom faces of the sliders. As a result, a combined structure of the X beam 12 and the X sliders 16 and 16′ is movable in the X direction, and a combined structure of the Y beam 13 and the Y sliders 14 and 14′ are movable in the Y direction as seen in Figure 2B. --

Please substitute the section heading at page 26, line 5, with the following:

-- Absorption of a Drive Reaction Force: --

Please substitute the paragraph beginning at page 26, line 6, with the following:

-- The X linear motor stators 18 and 18′ and the Y linear motor stators 3 and 3′ have predetermined masses, respectively, and they serve as a reaction force counter, like the first embodiment. The X linear motor movable elements 17 and 17′ and the Y linear motor movable elements 2 and 2′ are connected to the X sliders 16 and 16′ and the Y sliders 14 and 14′, respectively, and they are movable in the X and Y direction, respectively. In turn, the X sliders

16 and 16′ and the Y sliders 14 and 14′ are connected to the X beam 12 and the Y beam 13, respectively. Thus, through the motion of the beams in the X and Y ~~direction~~ directions, the movable table 1 placed at the intersection of the beams is driven in the X and Y directions. --

Please substitute the paragraph beginning at page 26, line 22, and ending on page 27, line 1, with the following:

-- When the movable table 1 is driven in the X or Y direction in response to the propulsion force of a corresponding linear motor, a drive reaction force which acts ~~on in~~ by the motion of the movable table 1 in the X or Y direction is applied to the X linear motor stators 18 and 18′ or the Y linear motor stators 3 and 3′. --

Please substitute the paragraph beginning at page 27, line 2, with the following:

-- With this drive reaction force, the X linear motor stators 18 and 18′ or the Y linear motor stators 3 and 3′ can move along the stage base 4 surface, in the X or Y direction, which is opposite to the movement direction of the movable table 1. Through the motion of the X linear motor stators 18 and 18′ and the Y linear motor stators 3 and 3′ in the X and Y directions along the stage base 4 surface, the drive reaction force is converted into kinetic energies of the stators, such that the drive reaction force can be cancelled thereby. Therefore, transmission of the drive reaction force to the stage base 4 can be prevented effectively, and so the linear motor stators 3 and 3′ and 18 and 18′ can serve as a reaction force counter. --

Please substitute the paragraph beginning at page 27, line 18, with the following:

-- If, for example, the movable table 1 is moved in the positive X direction, the X linear motor stators 18 and 18′ move in the negative X direction in response to application of the drive reaction force thereto in the negative X direction. If the movable table 1 moves in the positive Y direction, the Y linear motor strators 3 and 3′ are moved in the negative Y direction in response to application of the drive reaction force thereto in the negative Y direction. --

Please substitute the paragraph beginning at page 28, line 2, with the following:

-- However, the influence of moment due to misregistration of a gravity center height of the whole structure, including a movable table and a combination of it, for example, as has been described with reference to the first embodiment, is similarly a problem to be considered. For example, ~~where~~ when the movable table 1 moves in the X direction, if the general gravity center height of the whole movement structure (hereinafter, X-direction movement structure), including the movable table 1, the fine-motion table 9, the reflection mirror 10, the fine-motion actuators 11, the X beam 12, the X sliders 16 and 16′, and the X linear motor movable elements 17 and 17′, is not registered with the gravity center height of the X linear motor stators 18 and 18′, the moment reaction force about the Y axis ~~can not~~ cannot be cancelled. As a result, vibration of the stage base 4 is accelerated by the moment reaction force about the Y axis and, finally, vibration of the floor where the machine is mounted may be excited. This leads to factors (vibration source) for causing external disturbance to the machine itself and also to another machine. --

Please substitute the paragraph beginning at page 28, line 27, and ending on page 29, line 12, with the following:

-- Similarly, ~~where~~ when the table is moved in the Y direction, if the general gravity center height of the whole movement structure (hereinafter, Y-direction movement structure), including the movable table 1, the fine-motion table 9, the reflection mirror 10, the fine-motion actuators 11, the Y beam 13, the Y sliders 14 and 14′, and the Y linear motor movable elements 2 and 2′, is not registered with the gravity center height of the Y linear motor stators 18 and 18′, the moment reaction force about the X axis ~~can not~~ cannot be cancelled and vibration of the stage base 4 is accelerated thereby. --

Please substitute the paragraph beginning at page 30, line 1, with the following:

-- Furthermore, in this embodiment, preferably, the gravity center height of a movement structure (hereinafter, unit X-axis movement structure), including the X beam 12, the X sliders 16 and 16′, and the X linear motor movable elements 17 and 17′, and the gravity center height of a movement structure (hereinafter, unit Y-axis movement structure), including the Y beam 13, the Y sliders 14 and 14′, and the Y linear motor movable elements 2 and 2′, are made at the same level. Also, the gravity center heights of the X-linear motor stators 18 and 18′ and of the Y linear motor stators 3 and 3′ are preferably made at the same level. With this arrangement, even ~~in~~ with respect to the action-reaction interrelationship between the linear motor stators and unit X-axis and Y-axis movement structure, there does not occur a moment about the X axis or Y axis with respect to the stage base 4, such that excitation of vibration of the stage base can be

avoided. --

Please substitute the paragraph beginning at page 30, line 24, and ending on page 31, line 10, with the following:

-- Further, in the present embodiment, a shown in Figures 1A and 1B, preferably, the line of action of the force to be applied to the linear motor movable elements is made at the same level as the gravity center height of the linear motor stators. With this structure, the linear motor propulsion force acts ~~on~~ at the gravity center height of the linear motor stators. Thus, even regarding the operation of the X linear motor stators 18 and 18′ and the Y linear motor stators 3 and 3′ as a unit, it does not produce a moment about the gravity center thereof. As a result, excitation of vibration to the stage base 4 can be avoided. --

Please substitute the paragraph beginning at page 31, line 11, with the following:

-- In accordance with the structure described above, a stage system in which not only a reaction force in the X-axis or Y-axis direction, which is the movement direction of the movable table 1, but also a moment in the X-axis, Y-axis or Z-axis direction, are never produced to the stage base, can be accomplished, as a consequence. --

Please substitute the paragraph beginning at page 32, line 3, with the following:

-- Although the present embodiment has been described with reference to an example wherein the guide surface of the movable table 1 and the guide surface of the Y linear

motor stators 3 and 3′ are coplanar (i.e., the stage base 4), they may be defined upon different parallel planes and substantially the same advantageous effects are attainable ~~in~~ on that occasion. --

Please substitute the paragraph beginning at page 32, line 13, and ending on page 33, line 3, with the following:

-- Figure 3 is a front view for explaining the structure of a positioning system according to a third embodiment of the present invention. The top view of the same may be similar to the top view of Figure 2A. In Figure 3, those components corresponding to the elements of Figures 1 and 2 are denoted by like numerals. This embodiment differs from the second embodiment in that the Y beam comprises two, that is, upper and lower beams. More specifically, denoted at 130a and 130b are Y beams having two, upper and lower beams. X guide surfaces for guiding the motion of the movable table 1 in the X direction are defined at the opposite side faces of these Y beams, respectively. There are static bearings (not shown) disposed between the movable table 1 and these guide surfaces, such that non-contact and straight motion guiding operation is carried out. --

Please substitute the paragraph beginning at page 33, line 4, with the following:

-- In this embodiment, the X beam 12 comprises a single beam while the Y beam comprises two beams 130a and 130b disposed in the vertical direction. This facilitates easy designing for providing a structure in which the gravity center height of a unit X-axis movement

structure, including the X beam 12, the X sliders 16 and 16′ and the X linear motor movable elements 17 and 17′, and the gravity center height of the unit Y-axis movement structure, including the Y beams 130a and 130b, and Y sliders 14 and 14′, and the Y linear motor movable elements 2 and 2′, are made substantially at the same level. --

Please substitute the paragraph beginning at page 33, line 17, and ending on page 34, line 7, with the following:

-- Alternatively, since, in this embodiment, the X beam 12 comprises a single beam, while the Y beam comprises two beams 130a and 130b disposed in the vertical direction, the gravity center height of the Y guide surfaces formed at the side faces of the X beam 12 and the gravity center height of the X guide surfaces defined at the side faces of the Y beams 130a and 130b, can be made at the same level. The gravity center height of these X and Y guide surfaces corresponds to the height of the line of action of the force as the X-direction and Y-direction driving forces of the X beam 12 and Y beams 130a and 130b are transmitted to the movable table 1. Any difference between the gravity center height of the movable table 1 and the gravity center height of the guide surfaces corresponds to the moment to be applied to the movable table 1. --

Please substitute the paragraph beginning at page 34, line 19, and ending on page 35, line 4, with the following:

-- Further, the gravity center height of the X guide surfaces and Y guide surfaces is made substantially at the same level as the gravity center height of the whole movement structure, including the movable table 1, the fine-motion table 9, the reflection mirror 11, and the fine-motion actuators 11, and, in this arrangement, the transmission force of the propulsion force of each linear motor can act on ~~to~~ the gravity center of the whole movement structure. As a result, a moment about the gravity center is not produced, and excitation of vibration to the stage base 1 can be avoided. --

Please substitute the paragraph beginning at page 35, line 21, and ending on page 36, line 9, with the following:

-- Although the present embodiment has been described with reference to an example wherein the Y beam comprises two, upper and lower beams, while the X beam comprises a single beam, in reverse, the X beam may comprise two, upper and lower beams and the Y beam may comprise a single beam. Substantially the same advantageous effects are obtainable ~~in~~ <u>on</u> that occasion. Further, the number of beams is not limited to two, and three or more beams may be used. Also, the other beam is not limited to a single beam, such that plural beams may be used for both of the X and Y beams. One of the X and Y beams may comprise beams of an even number, while the other may comprise beams of an odd number, for example, a combination of two beams and three beams in different directions. --

Please substitute the section heading at page 36, line 11, with the following:

-- [Fourth ~~Forth~~ embodiment: Exposure Apparatus] --

Please substitute the paragraph beginning at page 36, line 12, with the following:

-- Figure 5 ~~8~~ is a schematic view of a general structure of an exposure apparatus in which a positioning system such as described above is incorporated as a substrate stage system and/or an original stage system. In this exposure apparatus, an original (reticle or mask) 521 held by an original stage 520 is illuminated by an illumination optical system 510, and a pattern of the original 521 is projected by a projection optical system 530 onto a substrate (wafer) 541 placed on a substrate stage (wafer stage) 540, whereby the substrate 541 is exposed with the pattern. Here, each of the stages 520 and 540 comprises a positioning system as has been described with reference to any one of the first to third embodiments. --

Please substitute the paragraph beginning at page 37, line 1, with the following:

-- In accordance with the exposure apparatus having a positioning system according to any of the preceding embodiments, a drive reaction force to be produced during acceleration or deceleration of the movable table can be converted into kinetic energies through the motion of the motor stators in an opposite direction and it can be absorbed thereby. Simultaneously, with the structure in which the gravity center positions of various movement components are held approximately at the same level, vibration to be applied to the stage base due to the moment reaction force can be cancelled effectively, As a result, unwanted swinging

motion or vibration of the base table attributable to the drive reaction force or moment can be reduced and suppressed, such that high-speed and high-precision positioning can be accomplished. Hence, with the use of such a high-speed and high-precision positioning system, the throughput of the exposure apparatus can be improved significantly. --

Please substitute the paragraph at page 37, line 25, with the following:

-- Next, an embodiment of a semiconductor device manufacturing method uses an exposure apparatus as described above, will be explained. --

Please substitute the paragraph beginning at page 38, line 1, with the following:

-- Figure 6 is a flow chart for explaining a general procedure for manufacturing various microdevices such as semiconductor devices, for example. Step 1 is a design process for designing a circuit of a semiconductor device. Step 2 is a process for making a mask on the basis of the circuit pattern design. Step 3 is a process for preparing a wafer by using a material such as silicon. Step 4 is a wafer process, which is called a pre-process, wherein, by using the thus prepared mask and wafer, a circuit is formed on the wafer, in practice, in accordance with lithography. Step 5 subsequent to this is an assembling step, which is called a post-process, wherein the wafer having been processed at step 4 is formed into semiconductor chips. This step includes an assembling (dicing and bonding) process and a packaging (chip sealing) process. Step 6 is an inspection step wherein an operation check, a durability check ~~an~~ and so on, for the

semiconductor devices produced by step 5, are carried out. With the processes, semiconductor devices are produces, and they are shipped (step 7). --